

REMARKS

Status of the Claims

Claims 1-21 are pending. Claims 8, 10, 13 and 16 are amended. The amendments to these claims are for clarification purposes and are not in response to a rejection.

Restriction Requirement

On September 20, 2002, the Examiner issued a Restriction Requirement in the above-identified application. The Examiner divided the invention into 5 Groups:

- I. Claims 1-7;
- II. Claims 8-16;
- III. Claim 17;
- IV. Claim 18; and
- V. Claims 19-21.

In response to the Restriction Requirement, Applicants elect Group II, Claims 8-16. This election is without traverse.

Although there is no outstanding rejection in the present Application, the Examiner has requested additional information with respect to the elected claims. The above amendment and the following remarks are offered for clarity purposes.

Specifically, the Examiner stated that “the definitions of ‘Y’ and ‘X’ being ‘attachment points’ are inadequate to identify the compounds being claimed.” Applicants respectfully

disagree and respectfully submit that, with respect to the elected Group II, it is not an issue.

Additionally, claim 8 was amended to address this concern.

The Examiner has further requested that Applicants “define all variables including ‘organic compound’ and a designation of the location on the ‘organic compound’ where it is attached to the linker in order to specify the elected invention.” Applicants believe that this request has been met by the above amendment. Additionally, “organic compound” is discussed further, below.

Finally, at the request of the Examiner, Applicants submit that claims 8-16 are directed to a complete compound (i.e., nanocrystal compounds), and are not directed to fragments. The structures of claim 10 represent organic compound portions of the overall compounds of claim 8. The structures of claims 11 and 16 represent complete compounds (including the variables defined therein).

Applicants respectfully submit that the claims, while broad, are reasonably precise with respect to 35 U.S.C. § 112, and otherwise comply with the laws of patentability. While the compounds of the present invention are novel, the methods with which they are claimed is not. For example, the “organic compound” of the present invention has the same role, and in some instances overlaps with the “affinity molecule” of U.S. Patent 5,990,479, to Weiss et al. The “affinity molecule” of Weiss et al. is disclosed essentially as a molecule that is “selected based on its affinity for a particular detectable substance whose presence or absence, for example, in a biological material, is to be determined.” See Weiss at col. 5, lines 50-55. There is no specific affinity compound disclosed in claim 1 of Weiss, nor is affinity compound specifically defined in

claim 1 of Weiss. Like the Weiss patent, one of ordinary skill in the art would understand the that the claims of the present invention are set forth with reasonable clarity, which is all that is required with respect to 35 U.S.C. § 112.

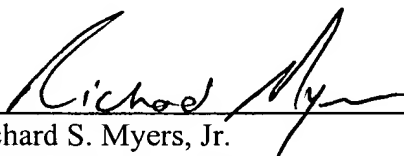
A key point to the present invention is the linker arm joining the nanocrystal and the organic compound. Many of the nanocrystals useable with the present invention are known, and many of the organic compounds useable with the present invention are known (including the nanocrystals and the 'affinity compounds' of Weiss, above). However, Weiss fails to disclose or suggest the linker arms and combinations of the present invention. This would be obvious to one of ordinary skill in the art and as such, the claims are reasonably precise.

Finally, Applicants further defined the organic compound in the claims to include the organic compound's bonding features in an effort to advance prosecution of the Application.

If the Examiner has any questions concerning this election or the Application in general, she is respectfully requested to contact the undersigned at the number listed below.

Pursuant to 37 C.F.R. § 1.17 and 1.136(a), Applicants respectfully petition for a one (1) month extension for filing a response in connection with the present application and the required fee of \$55.00 is attached hereto.

Respectfully submitted,

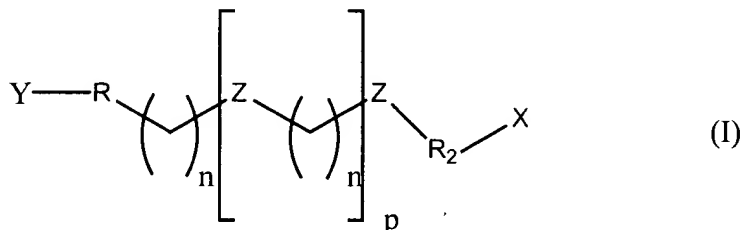


Richard S. Myers, Jr.
Registration No. 42,022
STITES & HARBISON
Customer No. 32885

Attorneys for Applicant

Version With Markings to Show Claim Changes Made

Claim 8 (Amended): A nanocrystal compound of the following formula:



$n \text{ \& } p = 0-10$
 $\text{Z} = \text{O}, \text{CH}_2, \text{ or NH}$

wherein Y represents a [the attachment point to the] nanocrystal and X represents [the attachment point of] an organic compound capable of bonding to a detectable substance;

R is a bond or is selected from the group consisting of:

SH,

$\text{O}(\text{CH}_2)_n\text{O}_n\text{SH}$,

$\text{NH}(\text{CH}_2)_n\text{O}_n\text{SH}$,

$\text{NH}(\text{CH}_2)_n\text{NH}_n\text{SH}$,

$\text{S}(\text{CH}_2)_n\text{O}_n\text{SH}$, and

$\text{S}(\text{CH}_2)_n\text{S}_n\text{SH}$; n is 1-10, with S being attached to the nanocrystal;

R₂ is a bond or selected from the group consisting of

carbonyl,

NH, SH,

CONH,

COO,

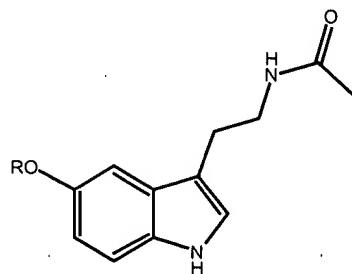
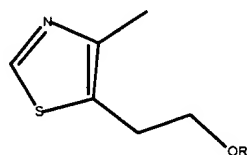
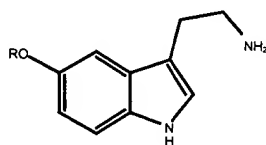
S,

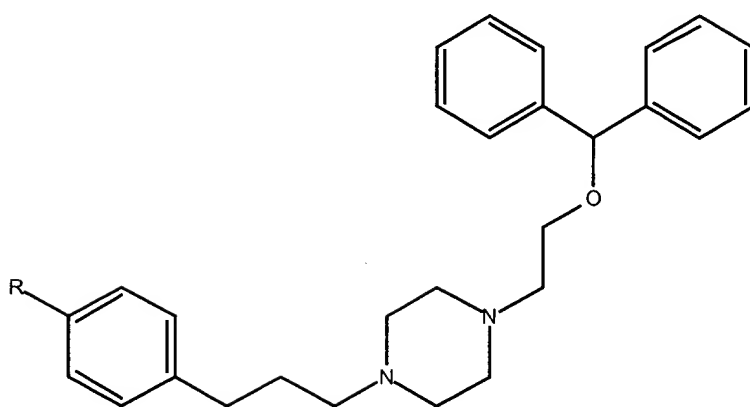
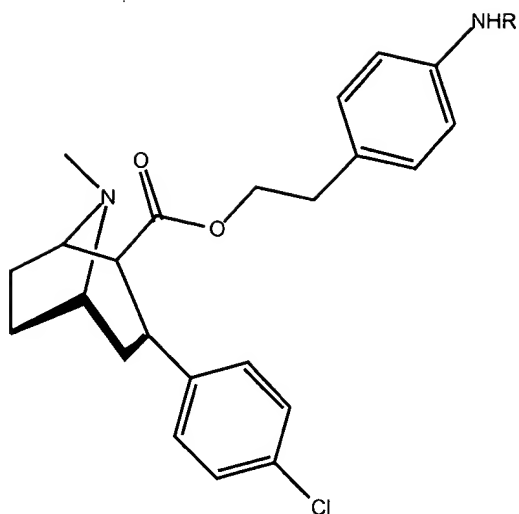
C₁₋₁₀ alkyl,

carbamate, and thiocarbamate; and wherein

when n and p are 1 or more, the resulting carbon or carbon chain may be substituted.

Claim 10 (Amended): The nanocrystal compound of claim 8, wherein the organic compound is [os] selected from the group consisting of:

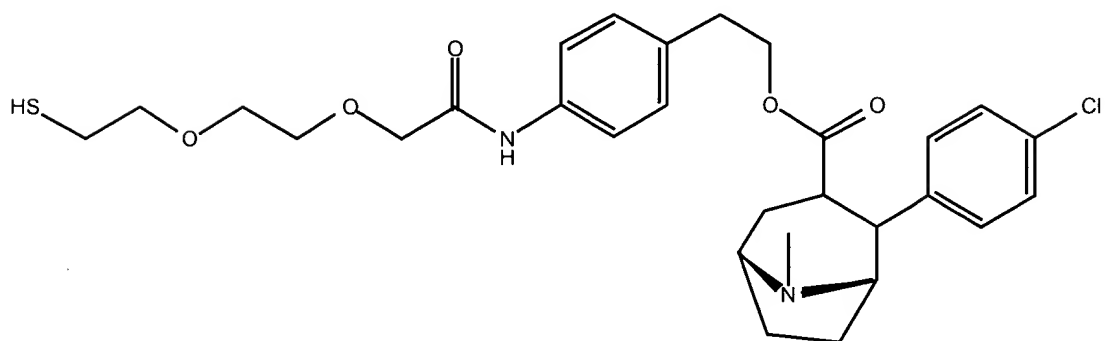
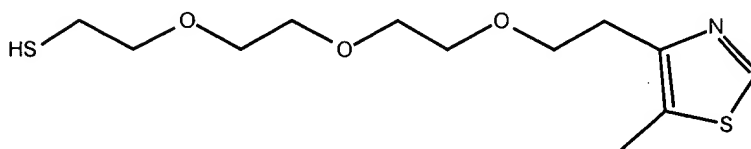
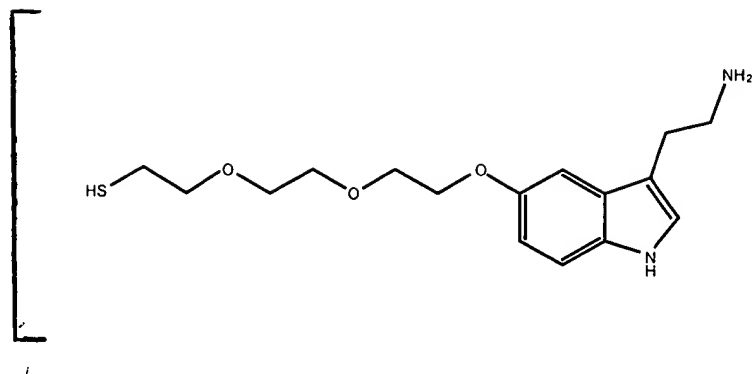


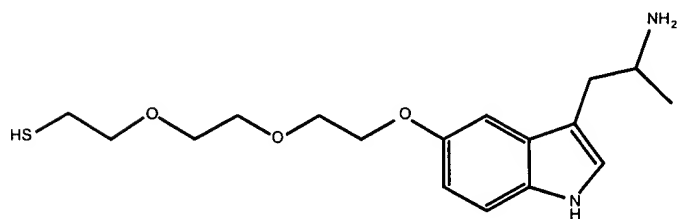
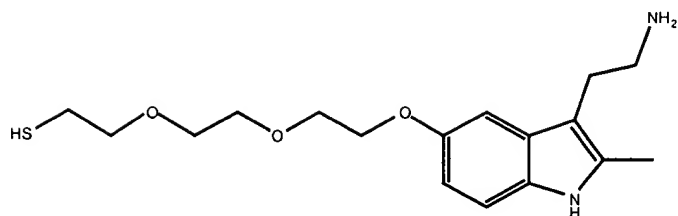
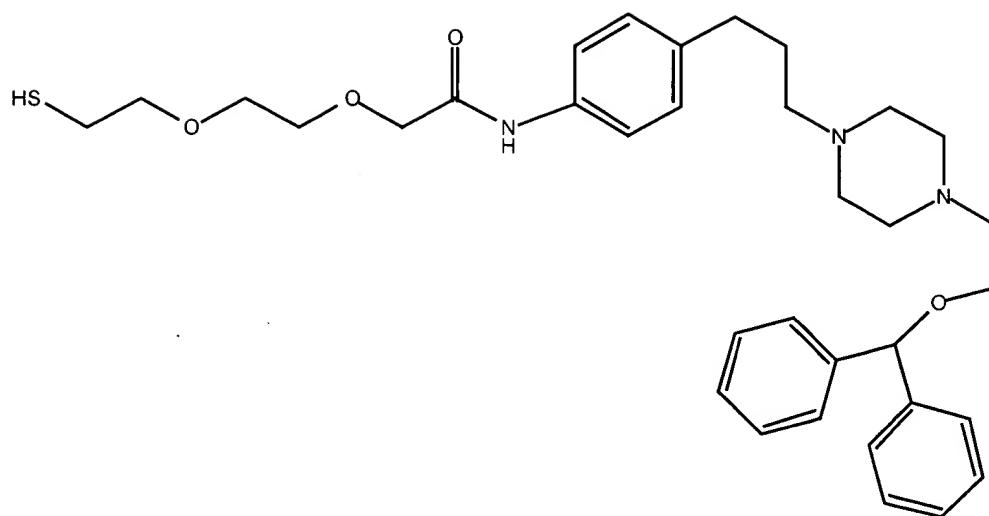


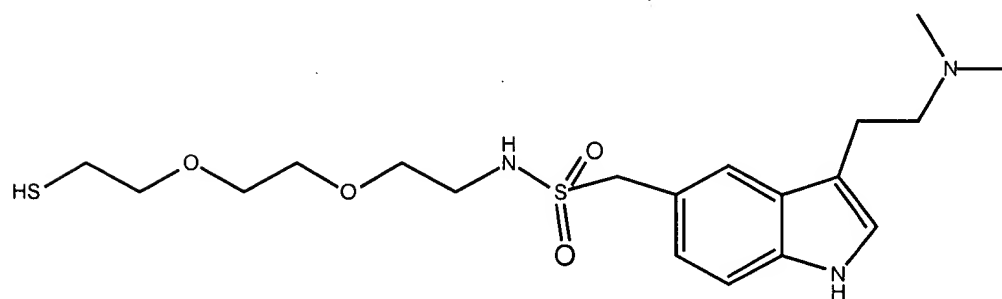
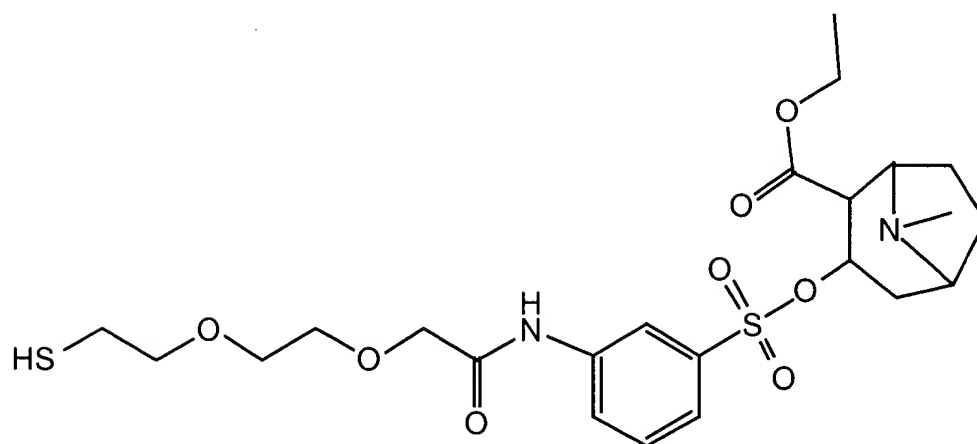
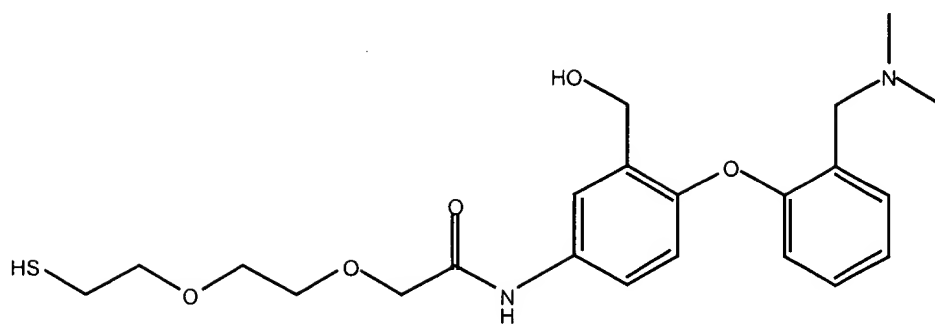
wherein R represents the attachment point to the nanocrystal compound [linker arm].

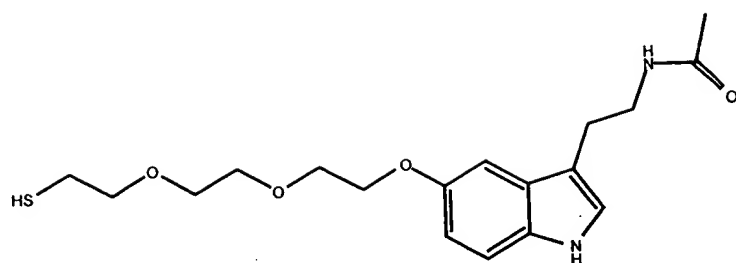
Claim 13 (Amended): The compound of claim 8, wherein the nanocrystal is selected from the group consisting of CdSe, CdS, PbSe, PbS, and CdTe nanocrystals.

Claim 16 (Amended): The compound of claim 8, selected from the group consisting of:

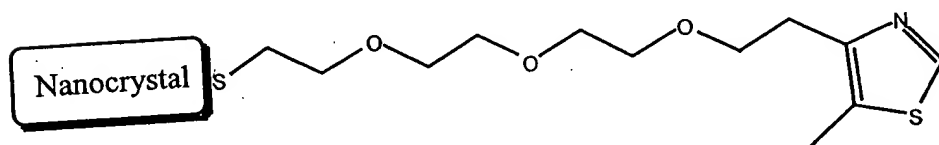
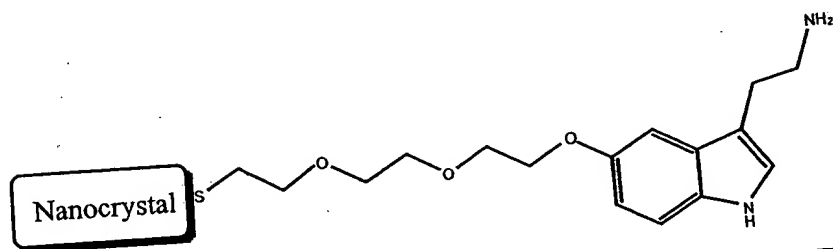


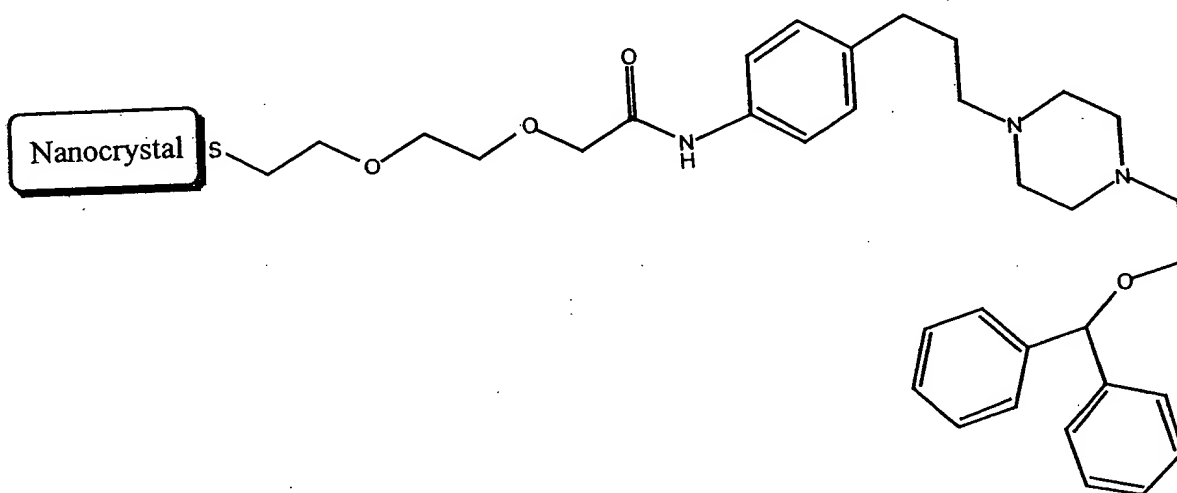
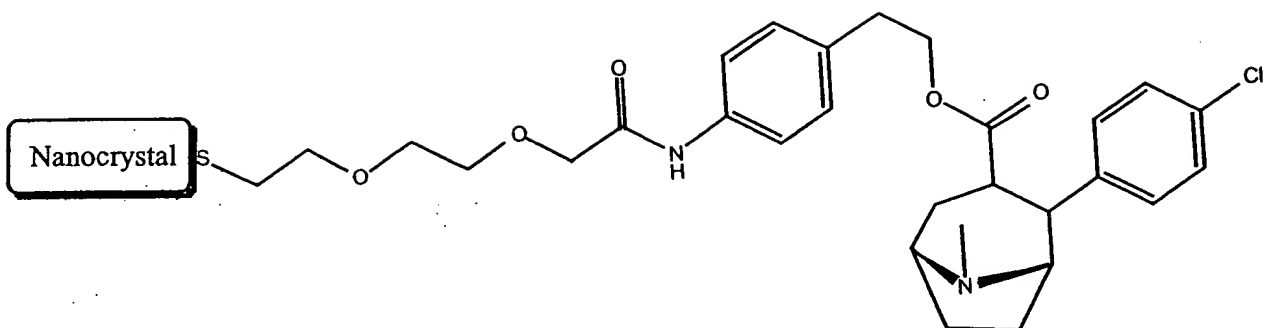




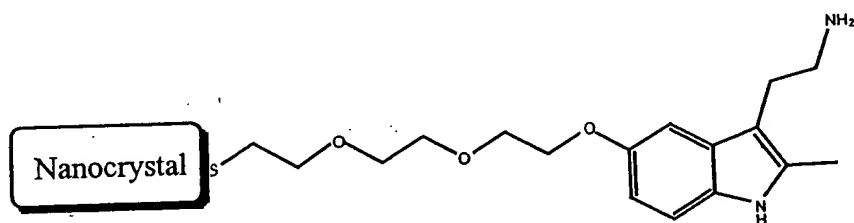


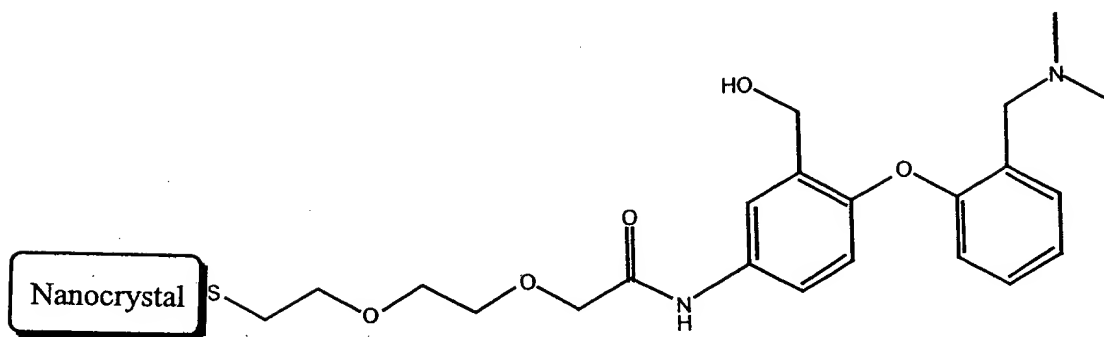
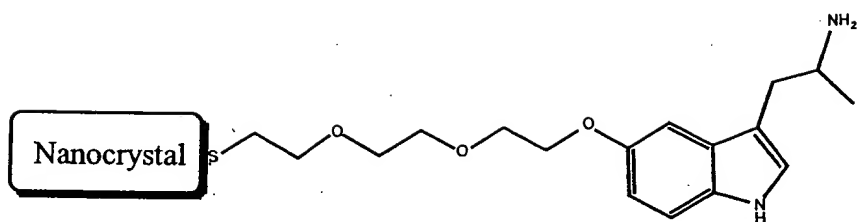
wherein S is the attachment point for the nanocrystal]

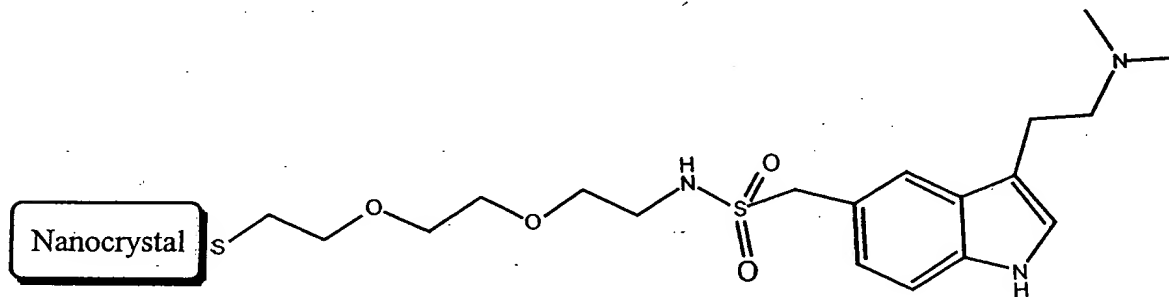
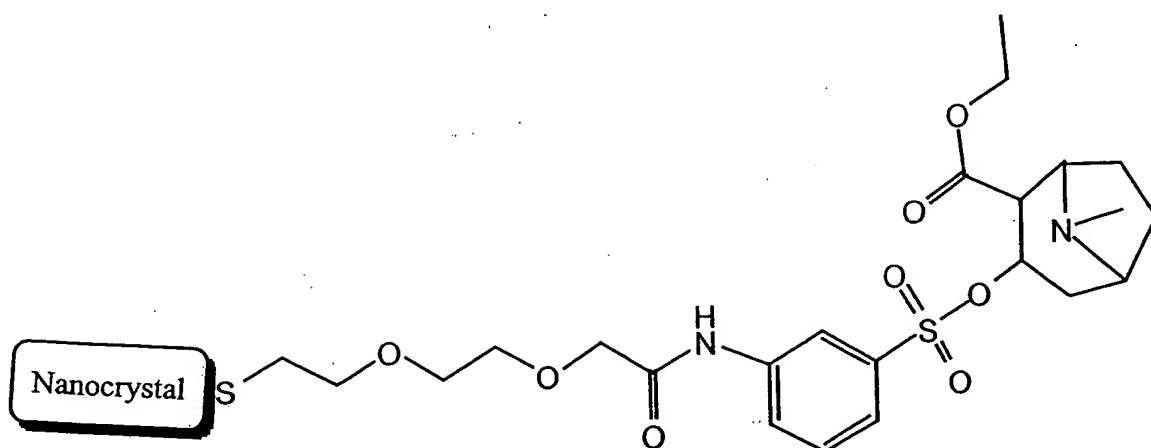




16







and

